



January 17, 2008

TO: Conservancy Members

FROM: Sam Schuchat, Executive Officer
Trish Chapman, Project Manager

RE: San Clemente Dam Removal Project – Project Update

As discussed in previous memos and staff reports, Coastal Conservancy staff has been discussing acquisition of several hundred acres of land owned by California American Water (CAW) on the Carmel River in Monterey County as part of a cooperative effort to remove San Clemente Dam on the river. San Clemente Dam is an obsolete structure that no longer serves any function and has been declared seismically unsafe by the Department of Water Resources (DWR). Removing the dam would resolve the public safety issue and provide steelhead trout, a federally-threatened species, with unimpaired access to over 25 miles of spawning and rearing habitat. It would also restore the natural sediment supply to the downstream watershed and beach and would enhance the biological connectivity of the river corridor. A project figure and brief description is provided in Attachment 1.

On May 24, 2007, the Conservancy approved disbursement of \$500,000 for engineering and environmental studies to evaluate the feasibility of and develop a strategy for removing San Clemente Dam on the Carmel River. The Conservancy also convened a Technical Review Team (TRT) composed of experts in the various technical fields to review and comment on the technical studies. The studies commissioned and their statuses are summarized below:

- *Basis of Design Report (BODR)*. Prepared by MWH Americas. The BODR consolidates into a stand alone document the goals, objectives, design criteria, technical analyses and conceptual design completed to date and updates the cost-estimate. The TRT has reviewed the Draft BODR and submitted written comments to the Conservancy and MWH. The Advance BODR (second draft) is complete and under review by the TRT.
- *Geotechnical Investigation Report*. Prepared by MWH Americas. The objective of the investigation was to confirm critical assumptions made in the conceptual design in order to verify the feasibility of cutting the bypass channel and creating the diversion dike. The Draft Geotechnical Report is complete and included in the Advance BODR, which is under review by the TRT.
- *Channel Restoration Design Study*. Prepared by Philip Williams & Associates (PWA). The Channel Design Study develops design criteria and a conceptual design for the restored reaches of San Clemente Creek channel and the bypass channel to confirm that

fish passage, sediment transport, and riparian habitat objectives can be achieved. Draft study was reviewed by TRT and comments incorporated into the final study. Final study is complete.

- *Flood Impact and Sediment Hazard Analysis*. Prepared by Mussetter Engineering, Inc. The objective of the study is to provide more detailed analysis of flood impact and sediment hazard risks associated with the project. Draft study is complete and under review by the TRT.

These studies have confirmed that the project can be feasibly constructed to achieve both public safety and habitat restoration goals. The *Flood Impact and Sediment Hazard Analysis* provided further evidence to support DWR's findings that the impacts of the proposed dam removal project on downstream flooding would be insignificant. Cost estimates for the project have risen from the original estimate of \$75 million to a current estimate of \$83 million; however, the technical studies also identified several potential opportunities to reduce costs which would be further investigated during the final design phase.

Based on these findings, Conservancy staff has been working with CAW to develop an implementation strategy for removing the dam that addresses the needs and concerns of all the involved entities. The basic concept is that CAW would pay an amount equivalent to the cost of buttressing the dam, which was estimated in 2005 as \$49 million. The State and Federal government, through the leadership of the Conservancy and NOAA Fisheries, would secure the additional funds needed from State, Federal and private foundation sources. At the completion of the project, CAW will donate approximately 1500 acres of land in the project area to a government or nonprofit entity for the purposes of watershed conservation and public access.

In December 2007, DWR completed the Final Environmental Impact Report (EIR) analyzing alternatives for addressing the seismic safety issue at San Clemente Dam. Alternatives reviewed include buttressing the dam and removing it. DWR intends to select a preferred project by early February. Therefore, DWR has given Conservancy staff until the end of January to reach an agreement with CAW on a project to remove the dam and transfer the property.

If you would like more information about the project or its benefits, please contact Trish Chapman at tchapman@scc.ca.gov or (510) 286-0749.

Attachment 1

San Clemente Dam Removal Project -- Overview

Background

The Carmel River in Monterey County represents one of the best opportunities for river restoration on California's Central Coast. Since 1921, however, the Carmel River and its wildlife resources have been impacted by San Clemente Dam. The dam is an obsolete structure that no longer serves any purpose and has been declared unsafe by the State's Division of the Safety of Dams. The dam's owner, California American Water (CAW), must take action to address the safety issue. The cheapest option is to simply strengthen the dam in place.

Removing the dam, however, would have multiple public benefits including restoring access to 25 miles of spawning and rearing habitat for steelhead trout, a federally threatened species, restoring the natural sediment supply to the downstream beaches, and providing new recreation opportunities for the public. For this reason, the Coastal Conservancy, NOAA Fisheries, and others have been working with CAW to develop a cooperative strategy for removing the dam rather than buttressing it. The concept, in its simplest form, is that CAW would contribute an amount equivalent to what it would cost to buttress the dam, and the other entities would work together to secure the additional funding needed to remove the dam. In this way, CAW would meet its regulatory responsibilities without undue cost to its ratepayers, and the public would achieve the additional benefits of dam removal.

Project Description

With any dam removal project, the most difficult issue is how to deal with the sediment accumulated behind the dam. It is estimated that there are 2.5 million cubic yards of sediment behind San Clemente Dam. Due to limited and difficult access to the dam site, trucking the sediment out was deemed infeasible. Likewise, allowing the sediment to erode downstream was deemed infeasible because it would likely worsen downstream flooding. There is already a significant flooding issue along the lower Carmel River. Therefore, the project design proposes to re-route a 0.5 mile portion of the Carmel River and use the abandoned reach as a sediment disposal area. This is described in greater detail below and illustrated in Figures 1 and 2.

San Clemente dam is located just downstream of the confluence of the Carmel River and San Clemente Creek, and the majority of the accumulated sediment is located along the Carmel River (see Figure 1). Therefore, the proposed project would blast a new channel through the ridge separating the river from the creek, and divert the Carmel River into the creek approximately one-half mile upstream from the dam. The rock blasted from the bypass channel would be used to create a structure (the "diversion dike") which would force the river into the diversion. The bypassed portion of the Carmel River would be used as a sediment disposal site for the accumulated sediment. Sediment would be removed from behind the dam to the bypassed portion of the reservoir over one season by excavation with heavy earthmoving equipment. Approximately 380,000 cubic yards of sediment in the San Clemente Creek arm of the reservoir would be relocated to the Carmel River arm, where the bulk of accumulated sediment already has been deposited. The sediments at the downstream end of the bypassed reservoir arm would be stabilized and protected from erosion. The San Clemente Creek channel would be

reconstructed through its historic inundation zone from the exit of the diversion channel to the dam site. Finally, the dam would be removed.

The project is expected to take four to five years to complete (three years of actual construction), including environmental review, permitting, design, infrastructure improvements, sediment removal, bypass channel excavation, diversion dike construction, dam demolition, and creek channel reconstruction.

At the completion of the project, CAW will transfer the project lands (approximately 1200 acres) to a public entity or nonprofit organization. This long-term landowner will manage the property for habitat preservation and will provide compatible public access. The Conservancy is discussing long-term landownership with a couple of different entities; however, resolution of some of the risk management issues will probably be required before reaching a formal commitment with any entity.

One option for reducing the costs of dam removal would be to obtain the assistance of the U.S. Department of Defense's Innovative Readiness Training Program (IRT). Through this program, members of the military reserves achieve their training objectives through participation in civilian projects. Civilian partners must pay for equipment and materials, but the military pays for the labor costs. IRT troops could potentially undertake many elements of the dam removal project including construction of roads, pipelines, and the river diversion dike, earthmoving, blasting of the new river channel, and removal of the dam. IRT staff has expressed serious interest in participating in the project. The project team is working on an application for IRT participation in the project.

Figure 1: San Clemente Dam Removal Project Area



Figure 2: Major elements of San Clemente Dam Removal Project (from San Clemente Dam Seismic Safety Draft EIR/EIS)

